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(54) **METHOD AND APPARATUS FOR DISCRIMINATING TONER BOTTLE TYPES, STIRRING TONER, AND DETECTING THE AMOUNT OF REMAINING TONER**

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(57) **ABSTRACT**

A method and apparatus for discriminating bottle types, for stirring the toner, and for detecting the amount of toner remaining in the toner bottle. A toner bottle is adapted to fit the apparatus for discriminating toner bottle types, and a toner bottle is adapted for the apparatus for stirring toner. The genuineness of the toner bottle product is checked by sensing a rib assumed to be formed with a predetermined length on the outer surface of the toner bottle. Toner is stirred by continuously rotating the toner bottle in forward and reverse directions. The toner bottle can be easily rotated in the forward and reverse directions by sensing the rib of the toner bottle by using the sensor. Since the load of rotation of the toner bottle changes in accordance with the amount of remaining toner, the rotational speed of the toner bottle is sensed by using the sensor to check whether toner is close to empty.

13 Claims, 8 Drawing Sheets

